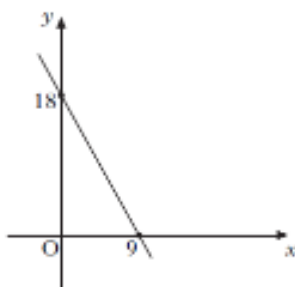


Practice Exam 2

1. A local council recycles 42 000 tonnes of waste a year.
The council aims to increase the amount of waste recycled by 8% each year.
How much waste does it expect to recycle in 3 years time?
Give your answer **to three significant figures**.

4 marks

2. A straight line cuts the x -axis at the point $(9, 0)$ and the y -axis at the point $(0, 18)$ as shown.



Find the equation of this line.

3 marks

3. The heights, in centimetres, of seven netball players are given below.

173 176 168 166 170 180 171

For this sample, calculate:

(a) the mean;

1 mark

(b) the standard deviation.

3 marks

Show clearly all your working.

4. Jamie works as a potter for a company which makes china ornaments.
He earns a basic salary of £218 per week plus 80 pence for every ornament he makes.
Jamie saves $\frac{2}{5}$ of his gross pay every week.
One week he makes 40 ornaments.
Calculate how much Jamie saves that week.

3 marks

5. The table shown below is used to calculate loan repayments.

		60 months	48 months	24 months
		Monthly repayment (£)	Monthly repayment (£)	Monthly repayment (£)
With payment protection	£20 000	463.85	551.43	994.23
	£15 000	347.89	413.57	745.67
	£7500	173.94	206.79	372.84
Without payment protection	£20 000	384.65	467.72	884.47
	£15 000	288.49	350.79	663.35
	£7500	144.24	175.40	331.68

Samir wishes to borrow £15 000.

How much will the loan cost him if he repays it over 48 months, with payment protection?

3 marks

6. Anna earns £42 000 per year. She has tax allowances of £5425. The rates of tax applicable for the year are given in the table below.

Taxable income (£)	Rate
On the first £34 600	20%
On any income over £34 600	40%

How much is Anna's **monthly** tax bill?

5 marks

7. A cylindrical container has a volume of 3260 cubic centimetres. The radius of the cross section is 6.4 centimetres. Calculate the height of the cylinder.

3 marks



Question	Marking Scheme	Evidence
1.	ANS : 52900 tonnes <ul style="list-style-type: none"> Know how to increase 8% Know how to calculate amount Calculate amount of waste Round to 3 significant figures 	<ul style="list-style-type: none"> 1.08 42000×1.08^3 52907.904 52900 4 marks
2.	ANS: $y = -2x + 18$ <ul style="list-style-type: none"> Know how to calculate gradient Know how to find y intercept Equation of the line correct 	<ul style="list-style-type: none"> $m = \frac{18-0}{0-9} = -\frac{18}{9} = -2$ $c = 18$ $y = -2x + 18$ 3 marks
3. (a)	ANS :172 <ul style="list-style-type: none"> Calculate the mean 	<ul style="list-style-type: none"> 172 1 mark
(b)	ANS: 4.8cm <ul style="list-style-type: none"> Calculate $(x - \bar{x})^2$ Substitute into formula Calculate standard deviation 	<ul style="list-style-type: none"> 1, 16, 16, 36, 4, 64, 1 $\sqrt{\frac{138}{6}}$ 4.8 3 marks
4.	ANS: £100 <ul style="list-style-type: none"> Know how to calculate gross pay Know how to work out savings All calculations correct 	<ul style="list-style-type: none"> $218 + 40 \times 0.8 (=250)$ $250 \div 5 \times 2$ 100 3 marks
5.	ANS: £4851.36 <ul style="list-style-type: none"> Interpret loan table Calculate total repayment Calculate cost of loan 	<ul style="list-style-type: none"> 413.57 413.57×48 $19851.36 - 15000 = 4851.36$ 3 marks
6.	ANS: £642.50 <ul style="list-style-type: none"> Know how to calculate taxable income Know how to calculate lower rate of tax Know how to calculate upper rate of tax Know how to calculate monthly tax Calculate monthly tax bill 	<ul style="list-style-type: none"> $42000 - 5425$ 34600×0.2 $(36575 - 34600) \times 0.4$ $(6920 + 790) \div 12$ 642.50 5 marks
7.	ANS :25.3cm <ul style="list-style-type: none"> Know how to find expression for volume of cylinder Equate volume to 3260 State value for h 	<ul style="list-style-type: none"> $\pi \times 6.4^2 \times h$ $\pi \times 6.4^2 \times h = 3260$ 25.3 3 marks